

CLAIM AMENDMENTS

1. (Currently Amended) A method for facilitating Internet security protocol (IPsec) based communications through a device that employs address translation in a telecommunications network, the method comprising the steps of:
- receiving a first electronic message from a first node, wherein:
- the first node is associated with a first network address;
- the first electronic message is based on IPsec; and
- the first electronic message is associated with a first identifier;
- the first identifier is generated by the first node; and
- the first electronic message is addressed to a second network address;
- the device generating a value based on the first identifier and a specified scheme;
- sending the first electronic message to a second node based on the second network address, wherein the first electronic message includes a particular network address that is associated with the device instead of the first network address;
- receiving a second electronic message from the second node, wherein:
- the second electronic message is based on IPsec; and
- the second electronic message is addressed to the particular network address;
- the second electronic message is associated with a second identifier that is different than the first identifier;[[,]] wherein and
- the second identifier is generated, based on the first identifier and the specified scheme, by the second node;
- the device determining whether the second electronic message is directed to the first node based on the value and the second identifier; and
- sending the second electronic message to the first node at the first network address when the second electronic message is determined to be directed to the first node.

2. (Currently Amended) A method as recited in claim 1, further comprising the steps of:  
receiving a third electronic message from a third node, wherein:  
the third node is associated with a third network address;  
the third electronic message is based on IPsec; and  
the third electronic message is associated with a third identifier;  
the third identifier is generated by the third node; and  
the third electronic message is addressed to the second network address;  
the device generating an additional value based on the third identifier and the  
specified scheme;  
sending the third electronic message to the second node based on the second network  
address, wherein the first electronic message includes the particular network  
address that is associated with the device instead of the third network address;  
~~wherein the step of receiving comprises~~  
receiving, after sending the first electronic message and the third electronic message  
to the second node, the second electronic message from the second node[[],];  
wherein:  
the second electronic message is based on IPsec; and  
the second electronic message is addressed to the third network address;  
the second electronic message is associated with the second identifier that is  
different than the first identifier and the third identifier; and  
the second identifier is generated, based on the third identifier and the  
specified scheme, by the second node;  
the device determining whether the second electronic message is directed to the third  
node based on the additional value and the second identifier; and  
when the second electronic message is determined to be directed to the third node,  
sending the second electronic message to the third node at the third network  
address.

3. (Cancelled)

1 4. (Currently Amended) A method as recited in claim 3 1, wherein the specified scheme  
2 is selected from the group consisting of a first scheme that produces a fixed length  
3 output, a second scheme that includes a hash algorithm, and a third scheme that  
4 includes a Message Digest 5 one-way hash function.

1 5. (Cancelled)

1 6. (Cancelled)

1 7. (Cancelled)

1 8. (Cancelled)

1 9. (Currently Amended) A method as recited in claim 8 1, wherein:  
2 the value is a hash value;  
3 the second identifier is based at least in part on the hash value;  
4 the hash value is comprised of a first plurality of bytes; ~~[[,]]~~ ~~wherein~~  
5 the second identifier is comprised of a second plurality of bytes; ~~[[,]]~~ ~~and wherein~~  
6 a last pair of bytes of the second plurality of bytes is a first pair of bytes of the first  
7 plurality of bytes; ~~[[,]]~~ ~~and wherein~~  
8 the step of determining whether the second electronic message is directed to the first  
9 node further comprises the step steps of:  
10 comparing the last pair of bytes of the second identifier to the first pair of  
11 bytes of the hash value; and  
12 when the last pair of bytes of the second identifier match the first pair of bytes  
13 of the hash value, determining that the second electronic message is  
14 directed to the first node.

1 10. (Currently Amended) A method as recited in claim 1, wherein:  
2 the first node is an IPsec originator node;  
3 the second node is an IPsec responder node;  
4 the first identifier is a first IPsec security parameter index; ~~and~~

5 the second identifier is a second IPsec security parameter index;  
6 the device employs a feature selected from the group consisting of network address  
7 translation (NAT), dynamic address NAT, and network address port  
8 translation (NAPT);  
9 and the method further comprises the steps of:  
10 creating and storing a mapping between the value and the first IPsec security  
11 parameter index;  
12 creating an association between the value and the first identifier; and  
13 storing the association in a translation table.

1 11. (Currently Amended) A method as recited in claim 1, wherein the first electronic  
2 message ~~is based on IPsec tunnel mode~~ and the second electronic message is are both  
3 based on an IPsec feature selected from the group consisting of IPsec tunnel mode and  
4 IPsec Encapsulation Security Payload.

1 12. (Cancelled)

1 13. (Cancelled)

1 14. (Cancelled)

1 15. (Cancelled)

1 16. (Currently Amended) A method as recited in claim 1, further comprising the steps of:  
2 when the second electronic message is determined to be directed to the first node,  
3 creating an association between the first ~~identifier~~ network address and the  
4 second identifier; ~~and~~  
5 storing the association in a table;  
6 receiving a third electronic message from the second node, wherein the third  
7 electronic message is based on IPsec and is associated with the second  
8 identifier; and  
9 determining that the third electronic message is directed to the first node based on the  
10 association.

1 17. (Cancelled)

1 18. (Currently Amended) A method as recited in claim 1, further comprising the steps of:  
2 receiving a third electronic from the second node, wherein;  
3 the third electronic message is based on IPsec; ~~and~~  
4 the third electronic message is addressed to the specified network address;  
5 the third electronic message is associated with a third identifier that is  
6 different than both the first identifier and the second identifier;  
7 the third identifier is generated, based on the first identifier and the specified  
8 scheme, by the second node;  
9 the device determining whether the third electronic message is directed to the first  
10 node based on the value and the third identifier; and  
11 when the third electronic message is determined to be directed to the first node,  
12 sending the third electronic message to the first node at the first network  
13 address.

1 19. (Currently Amended) A method as recited in claim 1, wherein the step of the device  
2 generating the value is performed before the step of receiving the second electronic  
3 message.

1 20. (Currently Amended) A method as recited in claim 1, wherein the step of the device  
2 generating the value is performed after the step of receiving the second electronic  
3 message.

1 21. (Cancelled)

1 22. (Cancelled)

1 23. (Cancelled)

1 24. (Currently Amended) A method for facilitating Internet security protocol (IPsec)  
2 based communications through a device that employs address translation in a  
3 telecommunications network, the method comprising the steps of:  
4 receiving a first electronic message from a first node, wherein:  
5 the first node is associated with a first network address;  
6 the first electronic message is based on IPsec; and  
7 the first electronic message is associated with a first identifier[[,]]; wherein  
8 the first identifier is generated by the first node based on a second identifier  
9 and a specified scheme; and  
10 the first identifier is different than the second identifier; and  
11 the first electronic message is addressed to a second network address;  
12 sending the first electronic message to a second node based on the second network  
13 address, wherein the first electronic message includes a particular network  
14 address that is associated with the device instead of the first network address;  
15 receiving a second electronic message from the second node, wherein:  
16 the second electronic message is based on IPsec; and  
17 the second electronic message is address to the particular network address;  
18 the second electronic message is associated with the second identifier; and  
19 the second identifier is generated by the second node;  
20 the device generating a value based on the second identifier and the specified scheme;  
21 the device determining whether the second electronic message is directed to the first  
22 node based on the value and the first identifier; and  
23 sending the second electronic message to the first node at the first network address  
24 when the second electronic message is determined to be directed to the first  
25 node.

1 25. (Currently Amended) ~~A method~~ An apparatus for facilitating Internet security  
2 protocol (IPsec) based communications with a device that employs address translation  
3 in a telecommunications network, the ~~method~~ apparatus comprising the steps of:  
4 a processor; and

5        one or more stored sequences of instructions which, when executed by the processor,  
6        cause the processor to carry out the steps of:  
7        generating a value based on both a first identifier that is associated with a first node  
8        and a specified scheme, wherein the first identifier is generated by the first  
9        node;  
10       the apparatus generating a second identifier based on the value and the specified scheme;  
11       receiving, from the device that employs address translation, a first electronic message  
12       that originates from the first node, wherein:  
13       the first electronic message is based on IPsec; and  
14       the first electronic message is associated with the first identifier;  
15       the first electronic message includes a particular network address that is  
16       associated with the apparatus instead of a first network address that is  
17       associated with the first node; and  
18       the first electronic message is addressed to a second network address that is  
19       associated with the second node;  
20       in response to receiving the first electronic message, generating a second electronic  
21       message to the first node, wherein:  
22       the second electronic message is based on IPsec; and  
23       the second electronic message is associated with the second identifier; and  
24       the second electronic message is addressed to the particular network address;  
25       sending the second electronic message to the device that employs address translation  
26       at the particular network address;  
27       wherein the device determines whether the second electronic message is directed to the  
28       first node based on the second identifier and ~~an additional~~ the value that is  
29       generated by the device based on the first identifier and the specified scheme; and  
30       wherein the device sends the second electronic message to the first node at the first  
31       network address when the device determines that the second electronic  
32       message is directed to the first node.

1    26.    (Cancelled)

1 27. (Cancelled)

1 28. (Currently Amended) ~~A method~~ An apparatus as recited in claim ~~27~~ 25, wherein the  
2 value is a hash value, the first identifier is a first IPsec Security Parameter Index (SPI),  
3 the second identifier is a second IPsec SPI, and the ~~step of instructions for generating~~  
4 the second IPsec SPI further comprises one or more stored sequences of instructions  
5 which, when executed by the processor, cause the process to carry out the step of  
6 generating, prior to receiving the first electronic message, the second IPsec SPI based  
7 on the hash value.

1 29. (Currently Amended) ~~A method~~ An apparatus as recited in claim ~~28~~ 25, wherein the  
2 value is a hash value, the first identifier is a first IPsec Security Parameter Index (SPI),  
3 the second identifier is a second IPsec SPI, the first IPsec SPI is a first randomly  
4 generated fixed length value and the step of instructions for generating the second  
5 IPsec SPI further comprises one or more stored sequences of instructions which, when  
6 executed by the processor, cause the process to carry out the step of generating the  
7 second IPsec SPI based on at least a first portion of the hash value and a second  
8 portion of a second randomly generated fixed length value.

1 30. (Currently Amended) ~~A method~~ An apparatus for facilitating Internet security  
2 protocol (IPsec) based communications through a router that employs network address  
3 translation in a telecommunications network, the ~~method~~ apparatus comprising the  
4 steps of:  
5 a processor; and  
6 one or more stored sequences of instructions which, when executed by the processor,  
7 cause the processor to carry out the steps of:  
8 receiving a first electronic message from a first IPsec originator node, wherein:  
9 the first IPsec originator node is associated with a first network address;  
10 the first electronic message is secured using IPsec; and  
11 the first electronic message is associated with a first security parameter index  
12 (SPI);



13                   the first SPI is generated by the first IPsec originator node; and  
14                   the first electronic message is addressed to a third network address;  
15           the router generating a first hash value based on the first SPI and a hash algorithm;  
16           sending the first electronic message to an IPsec responder node based on the third  
17                   network address, wherein the first electronic message includes a particular  
18                   network address that is associated with the router instead of the first network  
19                   address;  
20           receiving a second electronic message from a second IPsec originator node, wherein:  
21                   the second IPsec originator node is associated with a second network address;  
22                   the second electronic message is secured using IPsec; and  
23                   the second electronic message is associated with a second SPI;  
24                   the second SPI is generated by the second IPsec originator node; and  
25                   the second electronic message is address to the third network address;  
26           the router generating a second hash value based on the second SPI and the hash  
27                   algorithm;  
28           sending the second electronic message to the IPsec responder node based on the third  
29                   network address, wherein the second electronic message includes the  
30                   particular network address that is associated with the router instead of the  
31                   second network address;  
32           after sending the first electronic message and the second electronic message to the  
33           IPsec responder node, receiving a third electronic message from the IPsec  
34           responder node, wherein:  
35                   the third electronic message is secured using IPsec; and  
36                   the third electronic message is associated with a third SPI that is different than  
37                               the first SPI and the second SPI[[,]]; ~~wherein~~  
38                   the third electronic message is addressed to the particular network address;  
39                   the third SPI is generated by the IPsec responder node based at least in part on  
40                   the hash algorithm;  
41           the router determining whether the third electronic message is directed to the first  
42                   IPsec originator node based on the first hash value and the third SPI;

43           when the third electronic message is determined to be directed to the first IPsec  
44                   originator node, sending the third electronic message to the first IPsec  
45                   originator node at the first network address;  
46           determining whether the third electronic message is directed to the second IPsec  
47                   originator node based on the second hash value and the third SPI; and  
48           when the third electronic message is determined to be directed to the second IPsec  
49                   originator node, sending the third electronic message to the second IPsec  
50                   originator node at the second network address.

1    31.    (Currently Amended) ~~A method~~ An apparatus as recited in claim 30, wherein the first  
2           electronic message is based on IPsec tunnel mode and IPsec Encapsulating Security  
3           Payload (ESP), the second electronic message is based on IPsec tunnel mode and IPsec  
4           ESP, and the hash algorithm is a Message Digest 5 one-way hash function.

1    32.    (Currently Amended) A computer-readable medium carrying one or more sequences  
2           of instructions for facilitating Internet security protocol (IPsec) based communications  
3           through a device that employs address translation in a telecommunications network,  
4           which instructions, when executed by one or more processors, cause the one or more  
5           processors to carry out the steps of:  
6           receiving a first electronic message from a first node, wherein:  
7                   the first node is associated with a first address;  
8                   the first electronic message is based on IPsec; ~~and~~  
9                   the first electronic message is associated with a first identifier;  
10                  the first identifier is generated by the first node; and  
11                  the first electronic message is addressed to a second network address;  
12           the device generating a value based on the first identifier and a specified scheme;  
13           sending the first electronic message to a second node base on the second network  
14                  address, wherein the first electronic message includes a particular network  
15                  address that is associated with the device instead of the first network address;  
16           receiving a second electronic message from the second node, wherein:  
17                  the second electronic message is based on IPsec; ~~and~~

18                    the second electronic message is associated with a second identifier that is  
19                    different than the first identifier[[,]] ~~wherein~~  
20                    the second identifier is generated, based on the first identifier and the specified  
21                    scheme, by the second node;  
22                    the device determining whether the second electronic message is directed to the first  
23                    node based on the value and the second identifier; and  
24                    sending the second electronic message to the first node at the first network address  
25                    when the second electronic message is determined to be directed to the first  
26                    node.

1    33.    (Currently Amended) ~~A An apparatus for computer-readable medium carrying one or~~  
2                    ~~more sequences of instructions~~ for facilitating Internet security protocol (IPsec) based  
3                    communications ~~through a device that employs~~ while employing address translation  
4                    in a telecommunications network, ~~which instructions, when executed by one or more~~  
5                    ~~processors, cause the one or more processors to carry out the steps of comprising:~~  
6                    a processor; and  
7                    one or more stored sequences of instructions which, when executed by the processor,  
8                    cause the processor to carry out the steps of:  
9                    receiving a first electronic message from a first node, wherein:  
10                    the first node is associated with a first network address;  
11                    the first electronic message is based on IPsec; ~~and~~  
12                    the first electronic message is associated with a first identifier[[,]] ~~wherein~~  
13                    the first identifier is generated by the first node based on a second identifier  
14                    and a specified scheme; and  
15                    the first identifier is different than the second identifier; and  
16                    the first electronic message is addressed to a second network address;  
17                    sending the first electronic message to a second node based on the second network  
18                    address, wherein the first electronic message includes a particular network  
19                    address that is associated with the apparatus instead of the first network  
20                    address;  
21                    receiving a second electronic message from the second node, wherein:

22           the second electronic message is based on IPsec; ~~and~~  
23           the second electronic message is address to the particular network address;  
24           the second electronic message is associated with the second identifier; and  
25           the second identifier is generated by the second node;  
26       generating a value based on the second identifier and the specified scheme;  
27       determining whether the second electronic message is directed to the first node based  
28           on the value and the first identifier; and  
29       sending the second electronic message to the first node at the first network address  
30           when the second electronic message is determined to be directed to the first  
31       node.

1    34.   (Cancelled)

1    35.   (New) An apparatus for facilitating Internet security protocol (IPsec) based  
2       communications while employing address translation in a telecommunications  
3       network, the apparatus comprising:  
4       means for receiving a first electronic message from a first node, wherein:  
5           the first node is associated with a first network address;  
6           the first electronic message is based on IPsec;  
7           the first electronic message is associated with a first identifier;  
8           the first identifier is generated by the first node; and  
9           the first electronic message is addressed to a second network address;  
10      means for generating a value based on the first identifier and a specified scheme;  
11      means for sending the first electronic message to a second node based on the second  
12          network address, wherein the first electronic message includes a particular  
13          network address that is associated with the apparatus instead of the first  
14          network address;  
15      means for receiving a second electronic message from the second node, wherein:  
16          the second electronic message is based on IPsec;  
17          the second electronic message is addressed to the particular network address;

18           the second electronic message is associated with a second identifier that is  
19           different than the first identifier; and  
20           the second identifier is generated, based on the first identifier and the specified  
21           scheme, by the second node;  
22       means for determining whether the second electronic message is directed to the first  
23           node based on the value and the second identifier; and  
24       means for sending the second electronic message to the first node at the first network  
25           address when the second electronic message is determined to be directed to  
26           the first node.

1    36.   (New) An apparatus as recited in claim 35, further comprising:  
2       means for receiving a third electronic message from a third node, wherein:  
3           the third node is associated with a third network address;  
4           the third electronic message is based on IPsec;  
5           the third electronic message is associated with a third identifier;  
6           the third identifier is generated by the third node; and  
7           the third electronic message is addressed to the second network address;  
8       means for generating an additional value based on the third identifier and the  
9           specified scheme;  
10      means for sending the third electronic message to the second node based on the  
11           second network address, wherein the first electronic message includes the  
12           particular network address that is associated with the apparatus instead of the  
13           third network address;  
14      means for receiving, after sending the first electronic message and the third electronic  
15           message to the second node, the second electronic message from the second  
16           node;  
17      wherein:  
18           the second electronic message is based on IPsec;  
19           the second electronic message is addressed to the third network address;  
20           the second electronic message is associated with the second identifier that is  
21           different than the first identifier and the third identifier; and

22                   the second identifier is generated, based on the third identifier and the  
23                   specified scheme, by the second node;  
24           means for determining whether the second electronic message is directed to the third  
25           node based on the additional value and the second identifier; and  
26           means for sending the second electronic message to the third node at the third  
27           network address, when the second electronic message is determined to be  
28           directed to the third node.

1   37.   (New) An apparatus as recited in claim 35, wherein the specified scheme is selected  
2           from the group consisting of a first scheme that produces a fixed length output, a  
3           second scheme that includes a hash algorithm, and a third scheme that includes a  
4           Message Digest 39 one-way hash function.

1   38.   (New) An apparatus as recited in claim 35, wherein:  
2           the value is a hash value;  
3           the second identifier is based at least in part on the hash value;  
4           the hash value is comprised of a first plurality of bytes;  
5           the second identifier is comprised of a second plurality of bytes;  
6           a last pair of bytes of the second plurality of bytes is a first pair of bytes of the first  
7           plurality of bytes; and  
8           the means for determining whether the second electronic message is directed to the  
9           first node further comprises:  
10           means for comparing the last pair of bytes of the second identifier to the first  
11           pair of bytes of the hash value; and  
12           means for determining that the second electronic message is directed to the  
13           first node, when the last pair of bytes of the second identifier match the  
14           first pair of bytes of the hash value.

1   39.   (New) An apparatus as recited in claim 35, wherein:  
2           the first node is an IPsec originator node;  
3           the second node is an IPsec responder node;  
4           the first identifier is a first IPsec security parameter index;

5           the second identifier is a second IPsec security parameter index;  
6           the apparatus employs a feature selected from the group consisting of network address  
7                 translation (NAT), dynamic address NAT, and network address port translation  
8                 (NAPT);  
9           and the apparatus further comprises:  
10                 means for creating and storing a mapping between the value and the first IPsec  
11                 security parameter index;  
12                 means for creating an association between the value and the first identifier; and  
13                 means for storing the association in a translation table.

1   40.   (New) An apparatus as recited in claim 35, wherein the first electronic message and  
2           the second electronic message are both based on an IPsec feature selected from the  
3           group consisting of IPsec tunnel mode and IPsec Encapsulation Security Payload.

1   41.   (New) An apparatus as recited in claim 35, further comprising:  
2           means for creating an association between the first network address and the second  
3                 identifier, when the second electronic message is determined to be directed to  
4                 the first node;  
5           means for storing the association in a table;  
6           means for receiving a third electronic message from the second node, wherein the  
7                 third electronic message is based on IPsec and is associated with the second  
8                 identifier; and  
9           means for determining that the third electronic message is directed to the first node  
10                 based on the association.

1   42.   (New) An apparatus as recited in claim 35, further comprising:  
2           means for receiving a third electronic from the second node, wherein:  
3                 the third electronic message is based on IPsec;  
4                 the third electronic message is addressed to the specified network address;  
5                 the third electronic message is associated with a third identifier that is  
6                 different than both the first identifier and the second identifier;

7                   the third identifier is generated, based on the first identifier and the specified  
8                   scheme, by the second node;  
9           means for determining whether the third electronic message is directed to the first  
10           node based on the value and the third identifier; and  
11           means for sending the third electronic message to the first node at the first network  
12           address, when the third electronic message is determined to be directed to the  
13           first node.

1   43.   (New) An apparatus as recited in claim 35, wherein the value is generated before the  
2           second electronic message is received.

1   44.   (New) An apparatus as recited in claim 35, wherein the value is generated after the  
2           second electronic message is received.

1   45.   (New) An apparatus for facilitating Internet security protocol (IPsec) based  
2           communications while employing address translation in a telecommunications  
3           network, comprising:  
4           a processor; and  
5           one or more stored sequences of instructions which, when executed by the processor,  
6           cause the processor to carry out the steps of:  
7           receiving a first electronic message from a first node, wherein:  
8               the first node is associated with a first network address;  
9               the first electronic message is based on IPsec;  
10           the first electronic message is associated with a first identifier;  
11           the first identifier is generated by the first node; and  
12           the first electronic message is addressed to a second network address;  
13           generating a value based on the first identifier and a specified scheme;  
14           sending the first electronic message to a second node based on the second network  
15           address, wherein the first electronic message includes a particular network  
16           address that is associated with the apparatus instead of the first network  
17           address;  
18           receiving a second electronic message from the second node, wherein:



19           the second electronic message is based on IPsec;  
20           the second electronic message is addressed to the particular network address;  
21           the second electronic message is associated with a second identifier that is  
22                   different than the first identifier; and  
23           the second identifier is generated, based on the first identifier and the specified  
24                   scheme, by the second node;  
25       determining whether the second electronic message is directed to the first node based  
26                   on the value and the second identifier; and  
27       sending the second electronic message to the first node at the first network address  
28                   when the second electronic message is determined to be directed to the first  
29       node.

1    46.   (New) An apparatus as recited in claim 45, further comprising one or more stored  
2       instructions which, when executed by the processor, cause the processor to carry out  
3       the steps of:  
4       receiving a third electronic message from a third node, wherein:  
5           the third node is associated with a third network address;  
6           the third electronic message is based on IPsec;  
7           the third electronic message is associated with a third identifier;  
8           the third identifier is generated by the third node; and  
9           the third electronic message is addressed to the second network address;  
10      generating an additional value based on the third identifier and the specified scheme;  
11      sending the third electronic message to the second node based on the second network  
12           address, wherein the first electronic message includes the particular network  
13           address that is associated with the apparatus instead of the third network  
14           address;  
15      receiving, after sending the first electronic message and the third electronic message  
16           to the second node, the second electronic message from the second node;  
17      wherein:  
18           the second electronic message is based on IPsec;  
19           the second electronic message is addressed to the third network address;

20                   the second electronic message is associated with the second identifier that is  
21                   different than the first identifier and the third identifier; and  
22                   the second identifier is generated, based on the third identifier and the  
23                   specified scheme, by the second node;  
24           determining whether the second electronic message is directed to the third node based  
25           on the additional value and the second identifier; and  
26           when the second electronic message is determined to be directed to the third node,  
27           sending the second electronic message to the third node at the third network  
28           address.

1    47.   (New) An apparatus as recited in claim 45, wherein the specified scheme is selected  
2           from the group consisting of a first scheme that produces a fixed length output, a  
3           second scheme that includes a hash algorithm, and a third scheme that includes a  
4           Message Digest 49 one-way hash function.

1    48.   (New) An apparatus as recited in claim 45, wherein:  
2           the value is a hash value;  
3           the second identifier is based at least in part on the hash value;  
4           the hash value is comprised of a first plurality of bytes;  
5           the second identifier is comprised of a second plurality of bytes;  
6           a last pair of bytes of the second plurality of bytes is a first pair of bytes of the first  
7           plurality of bytes; and  
8           the instructions for determining whether the second electronic message is directed to  
9           the first node further comprises one or more stored instructions which, when  
10          executed by the processor, cause the processor to carry out the steps of:  
11          comparing the last pair of bytes of the second identifier to the first pair of  
12          bytes of the hash value; and  
13          when the last pair of bytes of the second identifier match the first pair of bytes  
14          of the hash value, determining that the second electronic message is  
15          directed to the first node.

1 49. (New) An apparatus as recited in claim 45, wherein:  
2 the first node is an IPsec originator node;  
3 the second node is an IPsec responder node;  
4 the first identifier is a first IPsec security parameter index;  
5 the second identifier is a second IPsec security parameter index;  
6 the apparatus employs a feature selected from the group consisting of network address  
7 translation (NAT), dynamic address NAT, and network address port  
8 translation (NAPT);  
9 and the apparatus further comprises one or more stored instructions which, when  
10 executed by the processor, cause the processor to carry out the steps of:  
11 creating and storing a mapping between the value and the first IPsec security  
12 parameter index;  
13 creating an association between the value and the first identifier; and  
14 storing the association in a translation table.

1 50. (New) An apparatus as recited in claim 45, wherein the first electronic message and  
2 the second electronic message are both based on an IPsec feature selected from the  
3 group consisting of IPsec tunnel mode and IPsec Encapsulation Security Payload.

1 51. (New) An apparatus as recited in claim 45, further comprising one or more stored  
2 instructions which, when executed by the processor, cause the processor to carry out  
3 the steps of:  
4 when the second electronic message is determined to be directed to the first node,  
5 creating an association between the first network address and the second  
6 identifier;  
7 storing the association in a table;  
8 receiving a third electronic message from the second node, wherein the third  
9 electronic message is based on IPsec and is associated with the second  
10 identifier; and  
11 determining that the third electronic message is directed to the first node based on the  
12 association.

- 1 52. (New) An apparatus as recited in claim 45, further comprising one or more stored  
2 instructions which, when executed by the processor, cause the processor to carry out  
3 the steps of:  
4 receiving a third electronic from the second node, wherein:  
5 the third electronic message is based on IPsec;  
6 the third electronic message is addressed to the specified network address;  
7 the third electronic message is associated with a third identifier that is  
8 different than both the first identifier and the second identifier;  
9 the third identifier is generated, based on the first identifier and the specified  
10 scheme, by the second node;  
11 determining whether the third electronic message is directed to the first node based on  
12 the value and the third identifier; and  
13 when the third electronic message is determined to be directed to the first node,  
14 sending the third electronic message to the first node at the first network  
15 address.
- 1 53. (New) An apparatus as recited in claim 45, wherein the value is generated before the  
2 second electronic message is received.
- 1 54. (New) An apparatus as recited in claim 45, wherein the value is generated after the  
2 second electronic message is received.